

Title: The 1853-1856 *cholera morbus* epidemic in Portugal as seen by the press¹.

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Abstract:

This research is part of a larger project focused on producing a History of the Popularization of Science and Technology in Portugal. The goal is to find out how scientific knowledge reached the common people in the nineteenth century, using newspapers as the main source of information. Keeping in mind the population's limited access to written material, nevertheless each newspaper could be read daily by an estimate 30.000 people in Lisbon, which places this source as probably the most widespread vehicle to divulge the latest scientific news at the time to an unspecialised audience. With a *cholera morbus* epidemic which affected the second largest Portuguese town and all the northern regions, as well as the Algarve, news and reports on its evolution were considered essential. A large database was built in order to analyse the news concerning this disease in 1855 and 1856, especially the ones about prevention and treatment. These are important historical sources that give us real information on the scientific knowledge of the time and the way it was used by society.

Key Words:

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Introduction:

“Cucumbers, prunes, poorly seasoned fruits, which our peasants, not because of hunger, but out of vice and reprehensible abuse shall not stop eating...”². Those vicious people enjoyed eating unripe fruits, and that is one of the main causes for the disease.

These were the arguments that were used to deny the *cholera morbus* epidemic in the middle of the nineteenth century in Portugal, saying that people, particularly the poor class, were sick on their own behalf, because they had vicious behaviour. It was summer time, it was very hot, and peasants were exposed to too much sun, which was deadly. These were supposed to be the real causes for their condition, not cholera. In fact, people were allegedly sick mostly with cholera, typhus or simple gastritis³, not because of the “guest from the Ganges”, as it was later called⁴. “Dysenteries are frequent during the summer, particularly among the poor classes, because of excessive work and abuse of noxious fruits, which this particular class overuses”⁵. Therefore, all sanitary measures, especially quarantine and market prohibition, were unnecessary and freedom of commerce should be re-established.

This controversy filled Portuguese newspapers from 1854 to 1856, a period rich in events such as the Paris Universal Exposition, the coming of age of young King Peter V and his travels in Europe, or the *oidium tuckeri* which infested the vineyards⁶, affecting one of the main products of the Portuguese economy: wine. Regardless of these important issues, the *cholera morbus* epidemic was a favourite subject in every newspaper, and news and reports on its evolution were considered essential. This epidemic affected the second largest Portuguese town and all the northern regions, as well as the Algarve, and also the capital city of Lisbon (but with a much lesser impact). Most newspaper issues included a considerable amount of news on this subject, revealing the concerns of the authorities and of the people responsible for public health. Out of 1613 news and ads on science and technology, there were 862 (54,4 per cent) on public health, 724 of them on cholera: 44,9 per cent of the total news and 84 per cent of the news on public health. These are important historical sources, especially the ones about prevention and treatment, because they provide us with real information on the scientific knowledge of the time and the way it was used by society.

² O Século n. 109, 14/08/1855.

³ O Século n. 118, 26/08/1855.

⁴ Diário de Notícias, n. 237, 19/10/1865.

⁵ O Século n. 119, 28/08/1855.

⁶ There were 64 news on Agronomy, 4 per cent of all the news on science and technology. Most of them were related to *oidium tuckeri*, a disease which ruined most vineyards before phylloxera completely wiped them out by the end of the century.

Collecting news on science and technology is part of a larger research project focused on producing a History of the Popularization of Science and Technology in Portugal, following a model already developed in the UK and the USA (Bauer and Bucchi 2007). Keeping in mind that “the process of knowledge making involves communication” (Topham 2009) and socially constructed concepts of “science” and “public” (Bensaude-Vincent 2009), and that these studies need to be integrated into a larger interdisciplinary history of public knowledge (Daum 2009), our main goal is to find out how scientific knowledge reached the common people in the nineteenth century, using newspapers as the main source of information. Considering the population’s limited access to written material, nevertheless each newspaper could be read daily by an estimate 30.000 people in Lisbon, which places this source as probably the most widespread vehicle to divulge the latest scientific news at the time to an unspecialised audience. Therefore we chose mainstream newspapers like Lisbon’s *O Século*⁷ and *Diário de Notícias*⁸ and Oporto’s *O Comércio*⁹ and *O Ecco Popular*¹⁰, whose purposes were to be of interest to all classes, accessible to all purses and understood by every level of intelligence (*Diário de Notícias*, 1964). Our research focuses on collecting news and advertisements that reveal the scientific knowledge of the time. A large database was built and the news and ads on science and technology were classified according to a classificatory grid, which includes the following themes: Science (Agronomy and Silviculture, Anthropology, Archaeology, Astronomy, Biology, Demography, Geography, Geology, History, Mathematics, Medicine, Meteorology, Physics and Chemistry, Statistics, Veterinary, Zoology); Scientific Education; Exhibits and Conventions; Museums; Personalities / Individuals; Publications on science; Accidents, risks and anomalies; Public health (Sanitary science / hygiene, medicine and pharmacy); Professional identity / Associations / Scientific Institutions / Societies; Technology / Innovation (Agriculture, Chemistry and Drugs, Communications, Energy, Engineering, Fine arts and performing arts, Industry, Medicine, Photography and cinema, Public works, Transport system, Urban Life, Veterinary, Weaponry, Others); Travels/ Scientific Expeditions (Geography, Medicine, New species).

⁷ *O Século* was a Lisbon daily newspaper, published in 1855. It lasted only 9 months and it was interrupted. A new *O Século* was published daily from 1881 to 1977.

⁸ *Diário de Notícias* is Portugal’s oldest newspaper still in publication. It was founded in December 29th 1864 in Lisbon as a daily newspaper, and it was inspired by other European newspapers whose goal was to be afforded by a large audience. Therefore it was very cheap and most of its production costs were paid for with advertisements, which was quite a revolutionary concept for its time. It was followed by Oporto’s *O Primeiro de Janeiro*, founded in 1869, and they both remain in publication.

⁹ *O Comércio* was Oporto’s longest running newspaper, published daily since June 2nd 1854 until July 30th 2005. On 1856 its name was changed to *Comércio do Porto*.

¹⁰ *O Ecco Popular* was a daily newspaper published in Oporto from 1847 to 1860.

“Discontinuity of competences is a historical phenomenon” (Shapin 1990) and the participation of the common people in the various fields of knowledge has always been limited. Regardless of that fact, since the early nineteenth century newspapers have played an important role in the formation of an interested audience. Together with the formal education, which concerned European governments since the eighteenth century, and became a matter of Law in Portugal with the liberal revolution and the Constitutional Letter of 1826, and was better put into practice further to the end of the century, newspapers contributed to shape public representations of knowledge in general and to the formation of public opinion. Especially since 1834, when censorship was abolished and there was a surge of scientific and literary newspapers (Tengarrinha 1989). Contemporary to the introduction of science in school curricula, and the creation of technical schools in Lisbon and Oporto (Caraça 1999), new generalist newspapers were brought to the public with innovative purposes. This was a favourable environment for the press, which profited from the contribution of the best intellectuals of their time, either as translators of foreign newspapers and books, or as reporters and opinion makers. They were an educated elite group, and most of them belonged to scientific societies, such as the Royal Academy of Sciences or the Geographical Society of Lisbon. And they felt they had a mission: to educate people and to guide them into a new and better world, for they shared the belief that the press, together with the theatre, had a social role and were instruments of civilization. These instruments helped to spread knowledge and science to a larger audience than books did (Santos 1988). No doubt, in late nineteenth century Portugal, society’s references, whether they were political, economic or scientific, originated in the media and in the people who wrote them (Ramos 1994). And all these authors shared a tendency for rational and clear thought (Marques 1981), as well as the same aversion for supernatural and metaphysics, the same emphasis on science and knowledge with practical utility, and the same optimism regarding mankind’s capacity to dominate nature and understand the world (Espada 2004).

1. Cholera epidemics in the nineteenth century

The term *cholera morbus* was used in the 19th and early 20th centuries to describe both cholera and other gastrointestinal diseases (sometimes epidemic) that resembled cholera. Actually, asiatic or epidemic cholera is an infectious gastroenteritis caused by the bacterium *Vibrio cholerae*. Transmission to humans occurs through the process of ingesting contaminated water or food. The source of the contamination is typically other cholera patients when their untreated diarrhoea discharge is allowed to

get into waterways or into groundwater or drinking water supply. Any infected water and any foods washed in the water can cause an infection. Cholera is rarely spread directly from person to person. The first symptoms are acute diarrhoea followed by severe dehydration. Other symptoms include rapid pulse, dry skin, tiredness, abdominal cramps, nausea, and vomiting. Finally there is drop in body temperature and pulse rate. With intense dehydration there are spasms and delirium episodes.

Although cholera can be life-threatening, prevention of the disease is straightforward if proper sanitation practices are followed, such as patient isolation, disinfection of water supplies and raw food, quarantine measures, vaccination (the first cholera vaccine was developed by the Spanish doctor Jaime Ferran i Clua in 1885). Cholera is now no longer considered a pressing health threat in Europe and North America due to filtering and chlorination of water supplies, but it affects heavily the developing countries populations. Nowadays antibiotics are used as treatment.

The nineteenth century was the time of the great pandemics, and cholera was particularly aggressive and devastating, causing huge mortality rates (Cascão 1993). Cholera was originally endemic to the Indian subcontinent, with the Ganges River likely serving as a contamination reservoir. The disease spread by trade routes (land and sea) to Russia, then to Western Europe, and from Europe to North America. In 1829 it reached Europe and in 1832 the disease claimed 6.536 victims in London, 20.000 in Paris (out of a population of 650.000) and about 100.000 deaths in all of France. The epidemic reached Russia, Quebec, Ontario and New York in the same year and the Pacific coast of North America by 1834. In 1849 there was a second major outbreak in Paris. In London, it was the worst outbreak in the city's history, claiming 14.137 lives, and it spread all over England and the United States. The third cholera pandemic, 1852-1860, mainly affected Russia, with over a million deaths. In 1853-1854, London's epidemic claimed 10.738 lives.

One of the major contributions to fighting cholera was made by physician and self-trained scientist John Snow (1813-1858), who found the link between cholera and contaminated drinking water in 1854. In addition, Henry Whitehead, an Anglican minister, helped Snow track down and verify the source of the disease, which turned out to be an infected well in London. Their conclusions were widely distributed and firmly established for the first time a definite link between germs and disease. Clean water and good sewage treatment, despite their major engineering and financial cost, slowly became a priority throughout the major developed cities in the world from this time onward. Robert Koch, 30 years later, identified *V. cholerae* with a microscope as the bacillus causing the disease in 1885. The bacterium had been originally isolated

thirty years earlier (1855) by Italian anatomist Filippo Pacini, but its exact nature and his results were not widely known around the world.

2. The 1853-1856 *cholera morbus* epidemic in Portugal, as seen by the press

In Portugal the first cholera epidemic was particularly serious in Oporto, because it struck during the city's siege. Cholera was brought to Oporto in 1832 on the boats that carried troops from Ostend to help the Liberal army during the civil war (Gomes 1866: IV). It spread throughout the country and over 40.000 people perished. The disease killed more people than the war itself (Cascão 1993). From then on, there were 8 more cholera epidemics in Portugal (Ferreira 1981). It was spread by certain high risk professions, such as soldiers, sailors, merchants, beggars, and its effects were increased due to poor hygiene in houses and streets, the use of improper water, the concentration of patients in small spaces in hospitals, bad quality food (Cascão 1993).

After disseminating all over Europe and the Mediterranean Sea, Canada, the United States and the Caribbean Islands in 1853, the first two cholera cases were registered in December in the northern border of Portugal. In May 1854 there were 12 more cases, 6 of which deadly. Quarantine measures prevented the epidemic from spreading outside a few border villages, and the official report mentioned a “non-existing epidemic” (Leitão 1973). By then newspapers were printing daily official reports on international harbours' sanitary conditions, according to the classification of “clean”, “suspicious” and “dirty” or “infected”, of any epidemic disease, the most common of which being cholera and yellow fever. This classification had implications on quarantine measures, which were immediately contested, especially in Oporto's newspapers, for it had clear implications on the freedom of commerce. Every ship upon arriving from one of these infected harbours had to be subject to quarantine, which was described as “the unnecessary luxury of rigour”. Commerce and navigation were victims of these “poorly executed regulations”¹¹. But in fact, all the infected countries were mostly paralyzed, business stopped all over. For instance in London there were 2.000 new cholera cases every week and the sum of the death, until September 1854, had already amounted to 7.669, that summer¹². In Barcelona there had been 6.000 lives lost to cholera, out of a population of 123.000¹³. The following year of 1855 other diseases also spread, such as yellow fever in the Caribbean Islands, Brazil and the

¹¹ *O Comércio* n. 16, 10/07/1854.

¹² *O Comércio* n. 53, 04/10/1854.

¹³ *O Comércio* n. 58, 16/10/1854.

South of the United States, especially New Orleans. And one cannot forget the endemic rabies, smallpox and typhus, particularly strong in Oporto in May 1855, before the arrival of the cholera epidemics. There was also malaria and intermittent fevers in towns near rice fields. The cholera epidemic was also very strong in Brazil in 1855: until October there had already been 1.770 deaths in Rio de Janeiro. And in December the death toll in Rio de Janeiro was 3.540¹⁴. Neighbouring Spain was “terribly assailed by the scourge: in Madrid there were 5.269 people down with cholera, 3.554 dead”¹⁵.

By September 1854, Portugal's border towns began applying prevention measures, in order to avoid cholera transmission from Spain. The military were in place, as well as health officials. In Elvas, a fortified town in the border, doors were closed and every traveller was subject to inspection. Whoever did not carry a sanitation note should stay at the lazaretto, a public hospital for quarantine¹⁶. In Oporto newspapers began alerting the health department to clean the city and take the measures advised by hygiene¹⁷. There were a few cases in the Algarve in the end of 1854, transmitted from Andalusia, but they were not considered epidemic, because they were not followed by others. In January 1855 Andalusia in the South and Galicia in the North were still considered “dirty”, or “infected”, by the health department. These two Spanish provinces were considered the most dangerous by the Portuguese authorities. But cholera could also cross the rest of the border, which it did, precisely through the Douro River in May 1855. That's where the first cases occurred, in the villages by the river, and then all the way down to Oporto. Letters from Pesqueira (May 6th) to *O Século* (Lisbon's newspaper) told of 5 people down with cholera and 30 with cholerine. Nevertheless, by then it was considered that “in our country this disease is not as damaging as in other places. It is avoided easily. The most important thing is not to be frightened, and observe hygiene procedures”¹⁸. Immediately afterwards, quarantine was established near Oporto, in order to prevent the arrival of the disease to the city. But on boats only, and people could pass by foot or on horseback. These measures of the health department were contested in the Oporto's newspapers, all for the freedom of commerce. And the discussion arose, about the effectiveness of quarantine measures. Also books on cholera prevention started being advertised in newspapers, including the homeopathic ones, and advice pamphlets were published and distributed at hospital doors. Meanwhile, at Oporto, prevention measures began to

¹⁴ *O Comércio* n. 291, 20/12/1855.

¹⁵ *O Comércio* n. 262, 15/11/1855, transcribed from the *Lisbon Medical Gazette*.

¹⁶ *O Comércio* n. 41, 06/09/1854.

¹⁷ *O Comércio* n. 42, 08/09/1854.

¹⁸ *O Século* n. 35, 13/05/1855.

be set in place: special hospitals were prepared, and society girls sewed linens for the beds and clothes for the patients¹⁹.

In June 1855 there was cholera in several villages near the Douro River, and fairs and markets were prohibited. This gave rise to the largest discussion of the time, because markets were fundamental to the economic life of the region, and producers could go bankrupt if they did not sell their products. The discussion involved the issue of contagion (Baldwin 2005): health authorities defended that large gatherings of people were dangerous for the transmission of the disease, and the newspapers claimed that cholera was not contagious and that the economic necessities of the people were more important. The prohibition of fairs and markets would increase the misery of the people, and that was considered to be the real cause for the transmission of the disease. All of these issues were subject of discussion in the International Sanitary Conferences which took place in Paris 1851, Constantinople 1866, Vienna 1874, Washington 1881, Rome 1885, Venice 1892, Dresden 1893 and again Venice 1897.

A few examples from the press²⁰:

“(...) If cholera should be contagious, like the plague, the scabies, or leprosy, at least the health delegate should have gotten it, for all his contact with people coming from the Douro river...”²¹.

Title: “Market prohibition”.

Text: “We’re forced to ask public authorities to consider the serious results of the interdiction of markets, with the pretext of preventing the spread of cholera. In every country, men of science haven’t yet decided about the way cholera passes from one village to the other. Whether cholera is contagious or epidemic is not yet resolved by science. The Viseu market is a most important influence to commerce and industry. By the end of last year the value of merchandise there was a million *reis*. Prohibition of markets is a larger calamity than the transmission of the disease, for the resulting evil is larger because it increases misery”²².

Title: “Quarantine”.

Text: “We transcribed from the English newspaper *Shipping and Mercantile Gazette* the following article on quarantines: ‘Among the obstacles to commerce, and regulations that belong to a time passed, in which medical science had not yet arrived to the high degree it is today, are laws on quarantine. Those laws need to be considerably modified, but such result can only be achieved by means of a convention or reunion of science men and delegate doctors from the main states of Europe and America. The laws on quarantines, now observed in many harbours, far from being considered sanitary measures and health preserving auxiliaries, are usually converted into instruments of oppression and injustice. When cholera first invaded Europe in

¹⁹ *O Século* n. 44, 25/05/1855.

²⁰ From a total of 16 news on the subject of contagion, 2,2 per cent of the news on cholera.

²¹ *O Comércio* n. 141, 21/06/1855.

²² *O Século* n. 175, 01/08/1855.

1831, it was generally believed to be contagious. In India, where this disease is known, that belief is totally abandoned, as well as in Europe it is diminishing... ”²³.

“The vital interests of the Nation are under attack by a mean plan of which science doubts, and against which experience claims”²⁴.

Title: “Is *Cholera Morbus* contagious or not?”

Text: “We shall expose the final results given by science, wishing to tranquilize people in fear of the idea of cholera as a contagious disease. There are endless discussions and debates, but the terrible epidemics of 1832, 1849 and 1854 have cleared us. After rigorous observation, experience and serious discussion, the most educated people of Europe have agreed upon considering cholera non-contagious. In truly contagious diseases, such as syphilis, smallpox and hydrophobia or rabies, there is always an organic substance which, when inoculated, produces the same disease. There is nothing of the kind with cholera. The symptoms are of real poisoning by an imponderable agent which spreads through the air, producing the annihilation of vital forces, diminishing of the main functions, followed by a violent yet healthy reaction when the toxic agent is repelled from the body. Every attempt at inoculating the agent has been useless. It is impossible to prove the transmission of miasmas from the patient’s body. We have to confess our ignorance, shared by the wisest doctors in Europe, regarding the transmission of the disease. We are inclined to believe that the air is a cholera agent. Sanitary cordons are useless. In every country where they were used the scourge has been huge, whereas in free countries the damage is always lesser. We’ve watched milkmaids die and their children spared. During all of our stay in the hospitals, the source of the infection, we’ve never watched real contagion. Sisters of charity, nurses, medical students, doctors in daily touch with the patients, they were all preserved from the disease (...) It is in the hands of the masters of the families, of the authorities and governments to take all the measures taught to us by science, experience and common sense, to purify the houses, to clean the streets and the cities...”²⁵.

Officially, Oporto’s harbour was declared “dirty” on the 1st July 1855. All the news tended to lessen the epidemic and present it as almost inexistent, and affirm that there were less people dying of cholera than on previous years from other more common diseases, such as typhus²⁶. The city organized its health service, with special hospitals for the cholera patients, doctors visiting patients at home, and health officers inspecting labourer’s dormitories, pharmacies giving away drugs to poor patients with a doctor’s recipe (paid for by the health department), and private assistance to the destitute, which resulted in prompt care and lesser mortality. On the other end, in small villages doctors were hard to find, and mortality rates were a lot higher. For instance in Avintes, a small village near Oporto, in only two months there were 300 deaths caused by cholera. There were several cases of a single doctor for an entire village, and when the doctor was too tired, or sick himself, then there was no doctor at all. In some

²³ O *Comércio* n. 209, 11/09/1855.

²⁴ O *Comércio* n. 228, 05/10/1855.

²⁵ O *Comércio* n. 235, 13/10/1855, pp. 1-2, article signed by Dr. H. Chomet, transcribed from Rio de Janeiro’s *Jornal do Comércio*, 04/09/1855. Miasmas were considered to be a poisonous vapor or mist filled with particles from decomposed matter that caused illnesses. It was identifiable by its foul smell.

²⁶ O *Século* n. 102, 05/08/1855.

villages drugs were out and were difficult to replace. The discussion then arose, about the lack of doctors to work in rural areas. After an expensive course in the university, most of them did not want to work in small villages, and preferred to work in big cities, with large hospitals, better working conditions and better salaries. J. A. d'Oliveira, a controversial author, even suggested the example of France and England, where there were practical medical courses, without much theory, and doctors could practice with reduced investment in formation. He even added that in the United States this profession was beginning to be exercised by women, who, in fact, should be handier at it...²⁷.

Throughout all this period, newspapers published official reports on the epidemic, with the number of patients in hospitals and the ones treated at home, divided by sex and age, and the mortality rates. By the end of August cholera was supposed to be extinct in Oporto, according to the news. Of course, the main interest was to declare its harbour “clean” and end quarantine. But it wasn’t until the end of September that a medical council was gathered to decide on the closure of the special hospital and end sanitary measures²⁸. On the November 5th Oporto’s harbour was officially considered “suspicious” of cholera morbus, and no longer “infected”²⁹. And on November 21st it was considered “clean”: there was firework and celebration on the streets³⁰. Throughout the North of Portugal, cholera continued, and it was not until December that markets were allowed to take place. And in the centre of Portugal, in Coimbra, where the University was established since the middle-ages, cholera struck in mid-October³¹, the University was shut down and it did not reopen until January 7th 1856, by a Royal decree.

It was not only education that was affected: the cholera epidemic hurt the economy because it closed down markets and it prevented people from spending summer by the sea, which was damaging to business in small beach towns. Even the smallest rumour was enough to drive people away. For instance in Póvoa de Varzim the epidemic was supposed to be extinct, but news about cholera “could bring about severe loss to its inhabitants, who eagerly wait for this season to obtain the means to subsist for the rest of the year”³².

The South of Portugal presented the worst scenario: in August 1855 in the Algarve the death rate was huge, due to the lack of doctors and any kind of assistance.

²⁷ *O Comércio* n. 180, 07/08/1855.

²⁸ *O Século* n. 148, 03/10/1855.

²⁹ *O Comércio* n. 255, 07/11/1855.

³⁰ *O Comércio* n. 268, 22/11/1855.

³¹ *O Comércio* n. 243, 23/10/1855. It was officially announced in 21/10/1855.

³² *O Comércio* n. 219, 25/09/1855.

By then 500 people had already perished in the small town of Tavira, and the death rate was 20 a day³³. In Faro, the capital of the province, over 2.000 people had already been stricken with cholera, and over 600 had died. In Portimão, in 10 days 106 people were killed and the little village of Alvor was totally abandoned³⁴. Extreme measures were necessary and a war ship sailed from Lisbon to the Algarve carrying 5 doctors, food and drugs for that province, “where there is scarcity of commodities and the epidemics reigns”³⁵. By November the epidemic was apparently over³⁶ and the performance of the military surgeons was praised³⁷. In fact, the army’s medical corps³⁸, as well as other doctors and some chemists in the North, were referred to by the press as philanthropists, for their excellent and heroic performance during the epidemic and their refusal to take payment for their services. This was used to affirm a professional class and bring about public attention to the prestige and scientific activity of these groups. But those actions were only possible because doctors were usually an elite group with enough income to be able to do without the salary for their profession.

The capital city of Lisbon was the least affected. The epidemic officially started in October 10th 1855³⁹: there were 18 cases, almost all fatal⁴⁰. Immediately, sanitary measures were put in practice, “knowing from experience that filth is the best way to spread the cholera epidemic”: in a long article, the Lisbon newspaper *O Século* praises the health authorities for the establishment of special hospitals for the cholera patients, and alerts to the need for cleaning alleys, inspecting brothels, and paying special attention to syphilis patients and false cholera drugs that are being sold as real medicine⁴¹. The official decree also established quarantine and sanitary inspection to all ships coming from suspicious harbours, inspection of markets, parish assistance comities, house calls and sanitary inspections of suspicious dormitories and construction of graveyards⁴². Anyway, after those first deadly cases, the cholera epidemic was considered to be benign and until November 15th only 55 people perished, out of 85 cholera patients⁴³.

In sum, in the Algarve there were 2.270 deaths, in the Oporto district 2.306. The final death toll in Portugal in 1855 was 8.718, about 45 per cent of the patients. But this

³³ *O Comércio*, n. 195, 25/08/1855; n. 207, 08/09/1855.

³⁴ *O Comércio* n. 210, 12/09/1855.

³⁵ *O Comércio* n. 206, 07/09/1855; *O Século* n. 126, 05/09/1855.

³⁶ It wasn’t, for in 25/11/1855 it struck again in the small village of Porches, killing 40 people, *O Comércio* n. 283, 11/12/1855. Transcribed from the *Lisbon Medical Gazette*.

³⁷ *O Século* n. 181, 11/11/1855.

³⁸ *O Século* n. 201, 12/12/1855. There were 11 philanthropy news, 1,5 per cent of the news on cholera.

³⁹ *O Comércio* n. 262, 15/11/1855, transcribed from the *Lisbon Medical Gazette*.

⁴⁰ *O Comércio* n. 250, 31/10/1855.

⁴¹ *O Século* n. 176, 06/11/1855.

⁴² *O Comércio* n. 252, 03/11/1855.

⁴³ *O Comércio* n. 280, 6/12/1855.

was not the end of it. From Lisbon the cholera epidemics spread to the island of Madeira and it went on in 1856, killing another 9.000 people, 3.600 of which in Lisbon. In the capital city's Santana Hospital, over 55 per cent of the hospital patients perished. In the same year yellow fever helped increase the mortality rate: imported from Brazil in July 1856, it spread to Oporto and killed 63 people. In 1857 it struck 17.000 people in Lisbon, almost 10 per cent of the city's population. It killed 5.000 people all over (Cascão 1993). Besides cholera, yellow fever and the endemic diseases, there were two other major epidemics in Portugal: in 1899 there a surge of was bubonic fever in Oporto, with 320 cases, and 112 deaths; and in 1918 the Spanish flu, which had spread all over the world, also invaded the entire country, killing 102.750 people (Ferreira 1981).

Taking into consideration the newspapers' mission to educate people, all the news and reports showed their authors' concern about science. As we could read above, most discussions were supported by quotations from medical journals and international newspapers. Regarding popular costumes, especially religious ones, newsmen were very critical and tended to depreciate supernatural causes, favouring rational explanations. In 1855 there were 13 news on religious ceremonies destined to prevent cholera or to thank god for the end of the epidemic. The following examples are clear on that matter:

"In Lisbon there is a penitence procession today. There will be prayers to God to keep away the cholera plague. The procession is a spectacle for some and sheer terror for others. Do not precipitate religious acts into an ocean of ridicule. These penitence processions are a religious and moral inconvenience, and it is incredible that they are allowed to happen on a civilized society"⁴⁴.

"The inhabitants of the village of Olhão (Algarve) have celebrated in thanksgiving to the Divine Providence for exempting them from the terrible scourge of cholera morbus, which claimed enough victims last year. They should have remembered that the village does not have a hospital and that its filthy streets aren't paved. Any of these works are more solemn and useful than the waste of those religious celebrations"⁴⁵.

3. Known causes, prevention and treatments

"Generally, people assailed by cholera belong to the less fortunate classes: the poorly dressed, the poorly fed and people with irregular lives"⁴⁶. Those were people who did not feed properly and who did not observe hygiene measures⁴⁷.

Poor people were always the first to die and they suffered the largest mortality rates. The same happened all over the world at the time, because sanitation was

⁴⁴ *O Comércio* n. 256, 08/11/1855.

⁴⁵ *O Século* n. 198, 02/12/1855.

⁴⁶ *O Comércio* n. 280, 6/12/1855.

⁴⁷ *O Século* n. 72, 01/07/1855.

precarious, especially among poor classes and their neighbourhoods (Tomes 2006). In Aveiro, the fisherman's ward was the one almost exclusively assailed by the disease⁴⁸. And places where there were concentrations of people presented the worst case scenarios, such as military barracks, prisons⁴⁹, convents, labourers' dormitories, and hospitals themselves. This led to the conclusion that misery was associated with the disease. Although cases of wealthy people were also reported, there was a moral issue regarding cholera patients which was always present in the news. Consequently, many deaths in the upper classes were surely not declared as cholera related.

"The house for abandoned girls is a very useful pious establishment, for which we call attention upon, especially now that it has been infected with the prevailing disease, which evolved, *as it is well known*, because of the indiscretions of some of the recluses..."⁵⁰.

"As we have observed, the main cause for this mortality is the negligence of the patients themselves..."⁵¹.

"It was observed that many people assailed with the prevailing disease have had heavy suppers, or eaten fruits a few hours before the attack, therefore we recommend more regularity in meals"⁵².

"Until today, the deaths have all been among the poor, mostly due to their neglect in calling for help, as soon as the first symptoms of the disease appear. Very seldom do people die, when immediately attended by a doctor, with proper drugs. The treatment in the hospital is the best and most charitable; the patients have everything they need"⁵³.

"*as it is well known*", this disease was punishment for bad actions, for people with the vicious habit of eating fruits and other raw food, or heavy meals at supper, in short, people with unruly lives. Even official reports, issued by the health department, mentioned degeneration, perversion, excess, dirtiness, disquiet, too many cucumbers and salads, as the main causes for cholera⁵⁴. It is quite interesting to consider that eating fruits and vegetables is vicious behaviour. In fact, at the time it was very reasonable to do so, considering the inexistence of water sanitation. Picking vegetables from contaminated soils and washing them with contaminated water was a sure way to get sick. Therefore, cooked food, especially boiled, was much wiser. And it was even better if the food was cooked on charcoal:

⁴⁸ O Comércio n. 213, 15/09/1855, n. 218, 24/09/1855.

⁴⁹ In the Bermuda Island, during the cholera epidemic, there were 200 deaths a day. Prison doors were opened because out of 150 prisoners only 13 were still alive. O Comércio n. 31, 14/08/1854.

⁵⁰ O Comércio n. 178, 08/04/1855.

⁵¹ O Século n. 176, 06/11/1855.

⁵² O Século n. 99, 02/08/1855.

⁵³ O Século n. 174, 03/11/1855.

⁵⁴ O Século n. 45, 26/05/1855.

“It was noticed in Crimea that soldiers who cooked their food on charcoal were not assailed by cholera. The use of this fuel was generalized, and remarkably cholera disappeared from the camp”⁵⁵.

The effects of the Sun have also evolved since then, from being considered deadly, to curing every disease in the mid-twentieth century, back to being deadly again. Hospitals have also gone through an evolution. Traditionally they were supposed to treat poor patients who could not be taken care of at home, either by family or servants, nor afford to call the doctor. Specialized hospitals, namely psychiatric asylums and sanatoria were particularly developed in the nineteenth century, but those were different cases. It was generally established that sick people should stay home, be taken care of, call the doctor, and in the end they died in their own bed, surrounded by family and neighbours. Children didn't even deserve signs of mourning or sadness (Lopes 1993, Araújo 1997, Almeida 2008). Slowly, the introduction of medicine in private life changed the mentalities, but it only had visible effects on the second half of the twentieth century. In 1855, patients clearly did not want to go to the hospital when they went down with cholera, and newspapers had an educating role in this matter. Especially because it had been observed that cholera patients' survival depended heavily on prompt care. When they arrived in the hospital long after the first symptoms, doctors had more difficulty rescuing them from sure death.

“A hospital was established in Lamego, not without great repugnancy from the people to attend it at first, but now its service is magnificent”⁵⁶.

“In Oporto, the need for another special hospital for choleric patients is obvious. The excellent and moralizing house assistance service presents serious inconvenient, because both patients and their families don't observe the doctors instructions; therefore, more people die outside the hospital, than in hospitals. (...) people regard hospitals with horror”⁵⁷.

Having agreed upon cholera not being contagious, and unanimously positioning themselves against the health department's quarantine measures, both Lisbon's and Oporto's newspapers made an effort to find other causes for the epidemic. For instance:

Title: “On the importance of the ozone on the sanitary condition”. Text: “Influence of this gas on certain diseases is not yet defined. The quantity of ozone varies every day. There seems to be a connection between the quantity of ozone in the atmosphere and the presence or absence of certain epidemic diseases, especially cholera”⁵⁸.

⁵⁵ *O Comércio* n. 231, 09/10/1855.

⁵⁶ *O Século* n. 85, 17/07/1855.

⁵⁷ *O Século* n. 116, 24/08/1855.

⁵⁸ *O Século* n. 196, 29/11/1855.

Fear and state of mind were presented as important factors, also associated with morality and good behaviour. Scientific experiments were even conducted to prove it:

“Terror is one of the most powerful causes for the prevailing disease”⁵⁹.

“There is nothing more fatal than the fear of the epidemic”⁶⁰.

“The first doctor of the king of Saxony, Norbeck, gives the following advice for cholera prevention: 20 doses of heat, 5 of cleansing, 12 of morality, 1 of activity, 2 of good sleep, 10 of fresh air, 50 of peace of mind. All together, these 100 doses are excellent anti-cholera medicine. Peace of mind is the largest ingredient (...) it is nowadays established that fear is the only cause of half the cholera strikes. As for the other half, it is mostly explained by imprudence. If people should observe the simplest hygiene recipes that they have been given, and keep some cold blood, cholera would lose its privilege of making more victims than any other disease”⁶¹.

Title: “The fear of cholera”. Text: “The Frankfurt newspaper tells of a Vienna doctor, who has made an interesting experience with the purpose of finding out the influence of the fear of cholera on a perfectly healthy individual. After obtaining consent from the authorities, the doctor promised a healthy and strong convict a reduced sentence if he were to get into bed with a cholera deceased. In a few hours he had all the symptoms of cholera. He was treated and survived. Afterwards the doctor surprised everyone when he declared that the deceased had not perished with cholera. With this he proved the effect of imagination and fear in the human body”⁶².

“On a letter from Florence there is a curious case, worthy of drawing the wise men’s attention. When cholera invaded Monte Domini’s hospital for beggars, terror prevailed upon the miserable patients. Suddenly, even though the scourge was growing, the director announced that the evil was gone; that there were no more sick people and that every patient should celebrate. Therefore, he was going to throw a party, with music, dance, games and a banquet. The next day there were no new cases, which shows that bad spirits is a dangerous auxiliary for the disease”⁶³.

And then there was a regular collaborator of the Oporto’s newspaper *O Comércio*, who wrote essays and comments on foreign books. J. A. d’Oliveira was particularly interesting because he was a visionary, with scientific arguments very much ahead of his time and clearly challenging points of view.

Title: “On the Cause of Epidemics on Men and Plants”. Text: “(...) the cause lies on the evil influence of atmospheric electricity. Man is a toy in the hands of such powerful, subtle and diabolic strength. Although hygiene measures should not be trusted upon completely (for they fail in several occasions), it is granted that cleaning animal and vegetable debris, and waters that contain them, is an absolute necessity, for their gases or miasmas are a vehicle for this agent”⁶⁴.

He has even managed to prove that by deforestation and the introduction of new cultures in places where forests used to be man had destroyed the balance between vegetable species, and provoked climate irregularity, and perversion of the

⁵⁹ *O Comércio* n. 196, 27/08/1855.

⁶⁰ *O Comércio* n. 222, 28/09/1855.

⁶¹ *O Comércio* n. 44, 13/09/1854.

⁶² *O Comércio* n. 250, 31/10/1855.

⁶³ *O Comércio* n. 178, 04/08/1855.

⁶⁴ *O Comércio* n. 142, 22/06/1855.

seasons. This was a sure cause to every scourge that devastate agriculture and every epidemic that assails mankind. His description of erosion and desertification is quite contemporary, as well as the effects it shall have on mankind. His advice: if we continue to ignore the laws of meteorology, we shall cause our own ruin⁶⁵.

In the presence of all these various causes for the epidemic, official prevention measures were established by the health department, as described above. Newspapers also contributed to divulge personal prevention measures, by publishing official reports and ads with full descriptions of cleaning methods for houses and clothes⁶⁶, and on the importance of opening windows and getting fresh air into the sick persons' room, to avoid contamination and getting rid of putrid miasmas⁶⁷. During this period there were several ads on medical books with instructions to "prevent and treat cholera morbus before the doctor arrives": 8 different ones were advertised, half of them on homeopathy (on a total of 28 ads). Both news and ads reveal the exact state of the art at the time: the only known remedy was the spirit of camphor, sold in pharmacies and hospital dispensaries, distributed free for poor people. The fear of cholera was such, that people misused the drug, taking it even when they were healthy. There was a report on how the excessive use of this drug had caused mental alienation and had led 8 people to an insane asylum⁶⁸. The ads could be very explicit and had a clear intention of educating people regarding this disease: for instance, one of them had a long description of all the symptoms and instructions for the entire treatment and diet during the disease:

Title: "Infallible remedy". Text: "Instructions for a quick treatment of cholera. Spirit of camphor, with sulphur, prepared according to doctors Quinn and Feldman formulas. Instructions: As soon as someone goes down with the first symptoms of cholera, such as vomits, diarrhoea, sudden prostrations, chills, chest spasms, legs' tremors, etc., he/she should immediately get into bed, with covers, but not too many; he/she should be given, with no longer delays, two drops of spirit of camphor, in a spoon full of cold water with some sugar; five minutes past, another dose, and successively every half an hour. This is for as long as the disease lasts. He/she should only eat chicken, lamb or beef broth, with some rice on it. Green or overripe fruits, acids, green vegetables, salads, fatty substances, all indigestive foods, and all sorts of excessive behaviours should be avoided. The healthiest foods are beef broth, roast meat, and rice, all with moderation. Tee, even with milk and sugar, can be drunk without fear, as well as a good wine, but always moderately..."⁶⁹.

⁶⁵ *O Comércio* n. 275, 30/11/1855.

⁶⁶ *O Ecco Popular* n. 189, 18/08/1855.

⁶⁷ *O Comércio* n. 130, 06/06/1855.

⁶⁸ "Some of these people had camphor in their pockets, and ate little pieces from time to time; other dissolved it in brandy. Taken in strong doses, camphor always provokes mental alienation. It is known that only a small amount can drive a dog insane, and soon the animal shall die", *O Comércio* n. 47, 20/09/1854.

⁶⁹ *O Século* n. 103, 07/08/1855. The ad ends with the price of each bottle of the drug, which was sold in an Oporto hospital.

Other treatments were available, such as scrubbing the patients with warm salt water, to activate circulation on dying patients⁷⁰.

Title: "Attention". Text: "Last night, the honourable doctor Almeida showed up radiant with joy at the medical clinic of St. Catherin's, with pleasant and surprising news concerning a cholera treatment. Such is the case: Dr. Almeida had been called to treat a boy who had gone down with cholera the night before. The doctor found him on the final stages of the disease: cold, without a pulse, cold breath. He had read an article on the medical magazine *Escholiaste Medico* about seawater baths, according to Mr. Starr's system. So he decided tried the system, but instead of a bath, he used wet cloths with very hot salt water. After an hour and a half there was a full reaction, the skin was no longer bluish and the patient had regained his natural colour. We saw it and we were flabbergasted. We take this opportunity to divulge this treatment in order to be of use to all those unfortunate people who may go down with the scourge. This treatment is not limited to the use of wet cloth with hot salt water. It is also necessary to drink two spoonfuls of cold water and to rub the skin with a stimulating liniment before applying the cloths⁷¹.

Spirit drinks, such as ginger liqueur, were also advertised as "good for stomach aches and also used in England as an antidote for cholera"⁷². An official report listed the following cholera treatments: "friction on the extremities, hot water, tea, chicken broth, gum Arabic syrup, egg and laudanum"⁷³. Other drugs were developed and tested for the same purpose, mostly in Spain, based on the following substances (6 news): spearmint⁷⁴, iodine⁷⁵, rhatany extract (or krameria), Arabic mucilage and cider peel syrup⁷⁶. Brandy was distributed as medicine to the troops based on the Spanish border⁷⁷. And a doctor from Braga (a northern town) wrote to the newspaper about his experience during the epidemic: he treated 46 cases, and tried the spirit of camphor and the spearmint, with poor results. Then a colleague from Lisbon sent him his secret formula, which he tried, achieving "wonderful results"⁷⁸. Ten years later, this colleague from Lisbon, Lourenço António Correia, a surgeon in the royal hospital and director of one of its infirmaries, and a knight, announced in the *Diário de Notícias* his intention to give away his Preservative Liqueur to every Portuguese doctor who should like to try it on his patients and confirm its virtues. All they needed was to write a letter, signed and confirmed by a notary, and then, after experimenting, they should publish their results⁷⁹. Anyway, the formula remained secret.

⁷⁰ *O Século* n. 119, 28/08/1855, n. 122, 31/08/1855, n. 125, 04/09/1855, n. 132, 12/09/1855.

⁷¹ *O Século* n. 119, 28/8/1855, transcript from the Oporto newspaper *A Concórdia*.

⁷² *O Comércio* n. 221, 27/09/1855.

⁷³ *O Século* n. 45, 26/05/1855.

⁷⁴ *O Comércio* n. 191, 21/08/1855.

⁷⁵ *O Século* n. 122, 31/08/1855 and *O Comércio* n. 197, 28/8/1855.

⁷⁶ *O Século* n. 174, 03/11/1855. The patient should remain in bed, with a diet and no liquids.

⁷⁷ *Diário de Notícias* n. 234, 15/10/1865.

⁷⁸ *O Século* n. 159, 16/10/1855.

⁷⁹ *Diário de Notícias* n. 247, 31/10/1865.

Considering the geographic origin of the epidemic, the following news was published as a serious advice, from someone with important experience on the subject:

“A Portuguese man, who lived in the East Indies for 36 years, in countries where cholera is endemic, sent the newspaper a recipe for a very simple cholera medicine, very much in use against such a damaging plague: Two fifths absinth, one fifth elder-tree flowers, one fifth mint leaves, and one fifth liquorices. All these vegetables are to be boiled (...) Cholera is an internal disease which requires perspiration. As soon as someone goes down, this broth should be taken abundantly, even if the patient vomits. It should always be repeated. If the patient wants a drink of cold water, it should be given, because it is a good symptom, and cold water also causes perspiration. For prevention, half a glass of water with absinth, brandy or cologne water should be taken in the morning, followed by putting a clove in your mouth, which should be replaced when its juice is exhausted”⁸⁰.

Leeches were also applied on patients’ stomachs⁸¹. There were also other recommended treatments: fireplaces, gunpowder and sulfur flower combustion, to keep away the disease, as well as walking herds of cows through the streets, because their breath would purify the air. And, of course, masses and prayers, which were reported in the news, but not entirely approved by the newspapermen.

In the end, cold weather was considered to be the best treatment, for cholera seemed to be less prevalent during the winter. But then, when the cold and the snow arrived, and cholera patients continued to show up in the hospitals, there was always some surprise associated⁸².

Finally, a man had a sort of vision of the future.

Title: “It’s remarkable. Text: “Yesterday a woman was struck with the prevailing disease. She presented the most serious symptoms. A man showed up and insisted she was to be fed 2 over ripped pears. She threw up those first ones, but the man insisted upon giving her a second dose and the patient kept them in her stomach. He recommended that the patient should keep having those pears every 3 hours, until she got better. And that she shouldn’t eat or drink anything else. Only in case of burning thirst should she be given hot tea with sugar. Today the woman was on her own two feet! The author of this recipe is Mr. António Manuel, from Vila Juzam, and he is staying at the Golden Eagle Hotel⁸³.

Now, this looks just like another crazy recipe for cholera, but let’s just think about it: if the pears were overripe, therefore they had mould, which is fungus. This leads us to antibiotics and penicillin. There was no scientific knowledge of this in those days. And, of course, the tea with sugar provided the necessary hydration and the boiled water had killed all the germs... This man discovered penicillin over 70 years before Fleming did!

⁸⁰ *O Século* n. 182, 13/11/1855.

⁸¹ *O Comércio* n. 218, 24/09/1855.

⁸² *O Comércio* n. 276, 01/12/1855.

⁸³ *O Século* n. 101, 4/8/1855, transcript from the Oporto newspaper *Braz Tisana*.

4. Ten years later

In 1865 Europe, the United States and the entire Mediterranean were again assailed by a devastating cholera epidemic. Portugal was barely spared, but fear was installed and newspapers reflected it. From 2.384 news and ads on science and technology, 1.297 (54,4 per cent) were on public health, 365 of which on cholera (15,3 per cent of the total news). Half of the cholera news related the development of the epidemic abroad. According to the foreign press news, quoted in *Diário de Notícias*, the epidemic had been imported by Indian pilgrims who had gone Mecca, and from there it spread to Cairo, Alexandria and Constantinople⁸⁴. Then all over the Mediterranean Sea and it reached England, France and Russia. From Paris, the news were mostly on the royal family, Emperor Napoleon III and his wife, visiting hospitals and issuing commemorative medals. Four of them were particularly important, for they concerned the French proposal for an international conference destined to study the causes for the development of the cholera epidemic, to take place in Constantinople, Turkey⁸⁵. The conference indeed took place in 1866 and validated all the health measures taken in Portugal during the previous epidemic.

Cholera reached the Portuguese border town of Elvas, coming from Spain. Elvas was a small town with 7.000 inhabitants, where there were 100 people with cholera, of which 62 died. There were 47 news from the Elvas epidemic (12,9 per cent). During this period there were official health reports on the entire country (7 per cent of the news), and quite a few cholera warnings and rumours, especially from the Algarve region, the closest to Andalusia, in Spain, where the epidemics was devastating. With this scenario, the news on the Spanish epidemics occupied 22,7 per cent. There were also 22 news on prevention measures and advice (6 per cent), 8 on quarantine related issues (2,2 per cent), 7 of philanthropic actions for cholera victims and orphans (2 per cent) and 13 on religious ceremonies to thank God and Providence for not bringing the epidemic to Portugal (3,6 per cent). There were also news and ads on books and journals with instructions in case someone went down with cholera, before the arrival of the doctor. Regarding prevention, there were advices on hygiene. There was still a clear notion that garbage and decomposing organic materials were a cause for the disease, as well as fresh fruits and difficult to digest food. The health department also issued official reports on cholera prevention, describing the organization of hospitals in each parish and the distribution of doctors and other sanitary workers, who were supposed to visit patients and poor people in their homes,

⁸⁴ *Diário de Notícias*, n. 154, 13/07/1865, n. 172, 03/08/1865.

⁸⁵ *Diário de Notícias*, n. 238, 20/10/1865, n. 244, 27/10/1865, n. 262, 18/11/1865, n. 279, 08/12/1865.

together with private assistance institutions, and also instructions on how to clean the body and the houses, avoid excess, unruly and depraved life, violent passion, terror and fright, food in excess. And some recipes and medicine that people should have at home, such as deer horn scrapings, gum Arabic, mustard, turpentine essence, sulphuric acid, laudanum...

Fear was still considered a main cause for the disease. And prevention and treatment measures were very much the same in 1865 as in 1855:

"Practical instructions to prevent the cholera invasion and clean the houses, approved by the Health Authorities: knowing that it is on the unhealthiest houses that cholera first strikes, and poorest neighbourhoods, it is useful to teach people a practical way to make them hygienically inhabitable. It is not enough to take care of street cleansing and sewer pipes, removing infection sources, and other hygiene policy. Cleaning unhealthy houses is a way to prevent the invasion of cholera morbus. Practical rules: whitewash the walls and ceilings; wash furniture and pavements with soap and water; disinfectants: limewash, charcoal, chloride, iron sulphate. Remove the trash; do your laundry; open windows for ventilation; shake the bed linen; sweep the pavement and wash it; avoid keeping dirty water and urine in the house, nor birds, neither dirty animals. Authorities and private institutions' assistants should always look into these matters, helping the masters of the families. Sick people's clothes should be boiled, the whole house disinfected and washed, doors scraped, and air should be allowed inside to complete disinfection. Signed by the Secretary of the Health Department, October 10th 1865"⁸⁶.

"Get up early, live without fear, eat roast, few vegetables, almost no fish, and not the salt one, pleasure and party, no napping, no melons, nor figs, they are dangerous, rub your body when you get up, stay warm, wash up, dress up, ventilate your rooms, hide your chamber pot, take a bath, eat pickles, lots of tea and old wine"⁸⁷.

Anyway, in 1865 there was no clear notion in the Portuguese news of the real causes for the epidemic. John Snow's work and discoveries on the link between contaminated water and the disease, and on the need for clean water and sewage treatment, although already divulged throughout the British scientific community, had not yet reached the rest of the world, where the discussion on the transmission of cholera persisted for several decades. For instance, in Egypt cholera was still believed to be transmitted through the air:

"Many of the most distinguished doctors of Egypt, following the opinion that the immediate causes for *cholera morbus* exist in the air, have made an experience which confirms this opinion. They have raised two globes, one over Alexandria and another over a village not yet infected by cholera. On the lower part of both globes, there hanged pieces of healthy beef. The globes were kept suspended for a while. When they were brought down, it was observed that the piece of meat that had hung over Alexandria was completely ruined, and the one that hung over the village was

⁸⁶ *Diário de Notícias*, n. 243, 26/10/1865, n. 244, 27/10/1865, n. 245, 28/10/1865.

⁸⁷ *Diário de Notícias*, n. 232, 13/10/1865.

perfectly sane. This result can serve science, in order to know the immediate causes of the epidemic, and discover the means to fight it”⁸⁸.

Other health concerns in 1865: smallpox; malaria and intermittent fevers in rice fields near towns and proposals for laws on the extinction of rice fields and changing the productions of these fields; rabies (or hydrophobia) caused by animal attacks, dogs and wolves; dysentery; rheumatism.

Conclusion:

It is known that the news reached only an elite group, due to low levels of literacy. Nevertheless, there were some ways to divulge information through the streets, either by the boys who shouted the news when distributing newspapers, or by means of collective readings on taverns and other public and private spaces. Generalist newspapers were written by journalists who had access to many international publications, both generalist newspapers and specialized journals, particularly from European countries and the United States. This way, they were able to provide their readers with the state of the art of science and most every other cultural aspect of their time. Regardless of this, the news on the *cholera morbus* epidemic and the prevention measures divulged and put to practice by health authorities reveal that the knowledge on the transmission of the disease was still very scarce. Hygiene measures were advised, proper nourishment was considered important, but the most important subject, clean water and sanitation, was still not present in either of the news. As quoted, J. A. D’Oliveira had some vision of this problem, when he wrote that “cleaning animal and vegetable debris, and waters that contain them, is an absolute necessity, for their gases or miasmas are a vehicle for this agent”. Anyway, this was only a part of his wider theory about the “evil influence of atmospheric electricity”... And some oriental wisdom was also taken into consideration. Empirically, it was acknowledged that boiled food and tea were better nourishment than raw food. Fruits and vegetables were a sure way to get sick and people were advised not to eat them. It was not until the twentieth century that proper sanitation works were done and the epidemics became scarce.

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⁸⁸ *Diário de Notícias*, n. 179, 11/08/1865, transcribed from the *Europe* newspaper.

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